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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,425	01/25/2005	Alexandre Joly	033339/280963	5425

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EXAMINER	
SAUNDERS JR, JOSEPH	
ART UNIT	PAPER NUMBER
2614	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/502,425	JOLY, ALEXANDRE	
	Examiner	Art Unit	
	Joseph Saunders	2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *24-45* is/are pending in the application.

4a) Of the above claim(s) *25-28 and 34-42* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *24,29-33 and 43-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *25 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7-23-04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election of Species IV in the reply filed on October 31, 2008 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Claims 24 – 45 are currently pending, claims 25 – 28 and 34 – 42 are withdrawn from further consideration, and claims 24, 29 – 33, and 43 – 45 are considered below.

Specification

2. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 101

3. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 24, 29 – 33, and 43 – 45 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Claim 24 is rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent and recent Federal Circuit decisions indicate that a statutory

"process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor is positively tied to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process. For example, the method of qualitatively evaluating a digital audio signal comprising the step of calculating a quality indicator is of sufficient breadth that it would be reasonably interpreted as a step completely performed mentally or without a machine. The Applicant has provided no explicit and deliberate definition of "calculating" to limit the step to an electronic form and the claim language itself is sufficiently broad to read on a person of ordinary skill in the art being mentally determining the quality indicator by evaluating the digital audio signal.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 29 – 31, and 33 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 29 – 31 recite the limitation "quality indicator vector", however claim 24 only introduced "a quality indicator" and therefore confusion occurs as to whether "quality indicator vector" refers back to "quality indicator"

or is introducing a new limitation. Adding to the confusion claim 33 recites "a quality vector", and again it is unclear how this limitation is to be interpreted. Claim 33 also recites the limitation "the reference audio signal" and there is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 24, 29 – 33, 43, and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Timus (US 6,628,737 B1), hereinafter Timus.

Claim 24: Timus discloses a method of qualitatively evaluating a digital audio signal ("The present invention relates generally to signal quality measurement, and in particular to synchronization of a stored test signal with a received signal, the quality of which is to be measured," Column 1 Lines 5 – 10), comprising calculating, in real time, in continuous time, and in successive time windows ("Another requirement is that the computational complexity of the method should not be to high, since the measurements must be performed in real time," Column 7 Lines 61 – 64 see also "sliding window" and

"sliding step," Column 8 Lines 19 – 46), a quality indicator which is obtained from said digital audio signal and consists of a vector associated with each time window ("4 reflection coefficients"), and wherein said vector has a dimension at least one hundred times less than the number of audio samples in a time window, said dimension being from 1 to 10 ("sliding window (800 samples)" and "4 reflection coefficients," Column 8 Lines 19 – 46).

Claim 29: Timus discloses a method according to claim 24, wherein the generation of a quality indicator vector employs the following steps for at least the audio signal to be evaluated:

a) calculating a temporal activity of the signal in each time window ("The choice of reflection coefficients as a suitable "domain" has several advantages. One advantage is the wide opening of the minimum of the comparison curve ψ due to the slow variation of the distance measure. This leads to well separated minima." and "The described distance measure may be used in the synchronization pattern selection method described with reference to FIGS. 4-5.," Column 8 Line 66 – Column 9 Line 16)

b) calculating a sliding average over N1 successive values of the temporal activity ("Another possibility is to measure the average number of detected minima per time unit), and

c) retaining the minimum value of M1 successive values of the sliding average ("and to lower the threshold if this number is too high or raise the threshold if this number is too low," Column 6 Lines19 – 32, see also Figure 7).

Claim 30: Timus discloses a method according to claim 29, wherein said quality indicator vector consists of said minimum value ("The choice of reflection coefficients as a suitable "domain" has several advantages. One advantage is the wide opening of the minimum of the comparison curve ψ due to the slow variation of the distance measure. This leads to well separated minima." and "The described distance measure may be used in the synchronization pattern selection method described with reference to FIGS. 4-5.," Column 8 Line 66 – Column 9 Line 16).

Claim 31: Timus discloses a method according to claim 29, wherein said quality indicator vector consists of a binary value that is the result of comparing said minimum value with a given threshold ("The choice of reflection coefficients as a suitable "domain" has several advantages. One advantage is the wide opening of the minimum of the comparison curve ψ due to the slow variation of the distance measure. This leads to well separated minima." and "The described distance measure may be used in the synchronization pattern selection method described with reference to FIGS. 4-5.," Column 8 Line 66 – Column 9 Line 16).

Claim 32: Timus discloses a method according to claim 29, including calculating a quality score by determining a cumulative time interval during which said minimum value is below a given threshold S_1 and/or by determining the number of times per second said minimum value is below a given threshold S'_1 ("Another possibility is to

measure the average number of detected minima per time unit, and to lower the threshold if this number is too high or raise the threshold if this number is too low," Column 6 Lines19 – 32, see also Figure 7).

Claim 33: Timus discloses a method according to claim 29, wherein said minimum values are generated at the same time ("synchronized") for the reference audio signal and for the audio signal to be evaluated and a quality vector is generated by comparing the corresponding minimum values for the reference audio signal and for the audio signal to be evaluated ("The choice of reflection coefficients as a suitable "domain" has several advantages. One advantage is the wide opening of the minimum of the comparison curve ψ due to the slow variation of the distance measure. This leads to well separated minima." and "The described distance measure may be used in the synchronization pattern selection method described with reference to FIGS. 4-5.," Column 8 Line 66 – Column 9 Line 16).

Claim 43: Timus discloses a method according to claim 24, wherein the audio signal to be evaluated is an audio signal transmitted digitally ("A transmitter 10 repeatedly transmits the test signal. The received signal is demodulated in a radio unit 12, channel decoded in a channel decoder 14 and speech decoded in a speech decoder 16 into a stream of speech samples X(n). These speech samples are forwarded to a synchronization unit 18, which controls the output of the stored copy of the test signal from a memory 20 with a control signal C. The similarity between test signal from

memory 20 and the received speech samples X(n), which are now synchronized with each other, is measured in a quality measurement unit 22," Column 7 Lines 20 – 30).

Claim 44: Timus discloses a method according to claim 24, wherein the audio signal to be evaluated is a digital audio signal to which digital coding has been applied ("speech decoded in a speech decoder 16 into a stream of speech samples X(n)," Column 7 Lines 20 – 30).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Timus in view of Palumbo (US 5,991,611), hereinafter Palumbo.

Claim 45: Timus discloses method according to claim 44, but does not explicitly state digital coding is bit rate reduction coding. Timus does state the present invention is in reference to a mobile radio communication system and also teaches that background noise may be replaced during transmission (DTX, Column 4 Lines 50 – 52). Palumbo provides further information on such a system described by Timus in which speech signals are transmitted in a mobile radio system and also using the discontinuous transmission technique. Palumbo explains that in such a system it is well known to use

a bit reducing code at the transmitter with a corresponding decoder at the receiver. Palumbo also explains that the discontinuous transmission technique results in a reduced bit rate since the bit rate of the "comfort noise" is very much lower than that of the speech information (Palumbo Column 1 Lines 1 – 65). Therefore, while Timus does not explicitly state that the digital coding in the mobile radio communication system is a bit rate reduction coding technique, given the teachings of Palumbo it would have been obvious to one of ordinary skill in the art at the time of the invention that the digital coding by discontinuous transmission disclosed by Timus is indeed a bit rate reduction technique and one would have been motivated to use discontinuous transmission since it has the advantage of reducing the level of interference in a cellular system such as the GSM system, Palumbo Column 1 Lines 1 – 65.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Saunders whose telephone number is (571) 270-1063. The examiner can normally be reached on Monday - Thursday, 9:00 a.m. - 4:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on (571) 272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. S./
Examiner, Art Unit 2614
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